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ANGIOSCOPIC ASSESSMENT OF ARTERIAL REPAIR FOUR TO EIGHT MONTHS AFTER ZOTAROLIMUS-ELUTING STENT IMPLANTATION: IMPLICATIONS FOR LATE STENT THROMBOSIS

i2 Poster Contributions
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Background: Zotarolimus-eluting stents (ZES) have shown better arterial healing than first-generation drug-eluting stents. However, arterial repair four to eight months after ZES implantation remains unknown.

Methods: Using angioscopy, we observed intra-stent surfaces following ZES implantation in the early phase (EP, 123±24 days) as well as in the middle phase (MP, 247±17 days). Angioscopy was performed for 49 ZES (44 lesions) in 33 patients (age 67±11 years, male 79%). Twenty-six ZES from 13 patients were observed in EP; 23 ZES from 20 patients, in MP. Neointimal coverage (NIC) was graded: grade 0, stent struts exposed; grade 1, struts bulged into the lumen, although covered; grade 2, struts embedded by the neointima, but translucent; grade 3, struts fully embedded and invisible. NIC was defined as heterogeneous when the NIC grade variation ≥1. Extent of exposed struts was scored: exp 0, no grade 0; exp 1, grade 0 in limited areas; exp 2, NIC grade 0 <30% of stent surface area; exp 3, NIC grade 0 ≥30%, but not completely exposed; exp 4, struts completely exposed. Yellow plaques underneath the stent and existence of thrombus were also explored.

Results: Although NIC heterogeneity tended to be more frequent (50% versus 22%, P=0.070) and yellow plaques was more significant in EP than in MP (58% versus 13%, P=0.0025), the majority of stents revealed dominant NIC of grade 3 regardless of the follow-up periods (73% in EP versus 78% in MP, P=0.75). Widely exposed struts (≥exp 3, 8% in EP versus 0% in MP, P=0.49), and thrombus (23% in EP versus 4% in MP, P=0.10) were commonly rare in EP and in MP.

Conclusions: Although ZES implanted lesions appeared still in the process of arterial repair 4 months after stenting, the majority of the struts were covered by the neointima; exposed struts as well as thrombus adhesion were rare by the time. Sufficient arterial repair may have occurred by 4 months after ZES stenting to avoid late stent thrombosis.